

Chapter NR 447

CONTROL OF ASBESTOS EMISSIONS

NR 447.01	Applicability; purpose	NR 447.13	Waste disposal for manufacturing, fabricating, demolition, renovation and spraying operations
NR 447.02	Definitions		
NR 447.03	Asbestos mills		
NR 447.04	Roadways	NR 447.14	Inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations
NR 447.05	Manufacturing		
NR 447.06	Demolition and renovation; applicability	NR 447.15	Air cleaning
NR 447.07	Demolition and renovation; notification requirements	NR 447.16	Reporting
NR 447.08	Demolition and renovation; procedures for asbestos emission control	NR 447.17	Active waste disposal sites
NR 447.09	Spraying	NR 447.18	Operations that convert asbestos-containing waste material into nonasbestos (asbestos-free) material
NR 447.10	Fabricating		
NR 447.11	Insulating materials		
NR 447.12	Waste disposal for asbestos mills		

Note: Chapter NR 447 as it existed on October 31, 1992 was repealed and a new chapter NR 447 was created effective November 1, 1992.

**NR 447.01 Applicability; purpose.** (1) **APPLICABILITY.** This chapter applies to all air contaminant sources which may emit asbestos, to their owners and operators and to any person whose action causes the emission of asbestos to the ambient air.

(2) **PURPOSE.** This chapter is adopted under ss. 144.31, 144.375 and 144.38, Stats., to establish emission limitations for asbestos air contaminant sources, to establish procedures to be followed when working with asbestos materials and to create additional reporting and record keeping requirements for owners or operators of asbestos air contaminant sources in order to protect air quality.

History: Cr. Register, October, 1992, No. 442, eff. 11-1-92.

**NR 447.02 Definitions.** In addition to the definitions in this section, the definitions contained in chs. NR 400 and 445 apply to the terms used in this chapter. The following definitions apply to the terms used in this chapter:

(1) "ACM" means asbestos-containing material.

(a) "Category I nonfriable ACM" means asbestos-containing packings, gaskets, resilient floor covering and asphalt roofing products containing more than 1% asbestos as determined using the method specified in appendix A of subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy, incorporated by reference in ch. NR 484, that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

(b) "Category II nonfriable ACM" means any material, excluding Category I nonfriable ACM, containing more than 1% asbestos as determined using the method specified in appendix A of subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

(2) "Active waste disposal site" means any disposal site other than an inactive disposal site.

(3) "Adequately wet" means sufficiently mix or penetrate with liquid to prevent the release of particulates.

Note: If visible emissions are observed coming from asbestos-containing material, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet.

(4) "Administrator" means the administrator of the United States environmental protection agency.

(5) "Asbestos-containing waste materials" means mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of this chapter. This term includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. As applied to demolition and renovation operations, this term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.

(6) "Asbestos mill" means any facility engaged in converting, or in any intermediate step in converting, asbestos ore into commercial asbestos. Outside storage of asbestos material is not considered a part of the asbestos mill.

(7) "Asbestos tailings" means any solid waste that contains asbestos and is a product of asbestos mining or milling operations.

(8) "Asbestos waste from control devices" means any waste material that contains asbestos and is collected by a pollution control device.

(9) "Commercial asbestos" means any material containing asbestos that is extracted from ore and has value because of its asbestos content.

(10) "Cutting" means to penetrate with a sharp-edged instrument and includes sawing, but does not include shearing, slicing or punching.

(11) "Demolition" means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.

(12) "Emergency renovation operation" means a renovation operation that was not planned but results from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard, is necessary to protect equipment from damage, or is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by non-routine failures of equipment.

(13) "Fabricating" means any processing, cutting, sawing or drilling, of a manufactured product that contains commercial asbestos, with the exception of processing at temporary sites (field fabricating) for the construction or restoration of facilities. In the case of friction products, fabricating includes bonding, debonding, grinding, sawing, drilling or other similar operations performed as part of fabricating.

(14) "Facility" means any institutional, commercial, public, industrial or residential structure, installation or building, including any structure, installation or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having 4 or fewer dwelling units; any ship; and any active or inactive waste disposal site. For purposes of this definition, any building, structure or installation that contains a loft used as a dwelling is not considered a residential structure, installation or building. Any

447.07 (1), (2), (3) (c), (4) (a) to (g) and (i) to (q) and 447.08 (4) to (9) apply.

(d) 1. In a facility being renovated, including any individual nonscheduled renovation operation, all the requirements of ss. NR 447.07 and 447.08 apply if the combined amount of RACM to be stripped, removed, dislodged, cut, drilled or similarly disturbed meets any of the following:

- a. At least 80 linear meters (260 linear feet) on pipes or at least 15 square meters (160 square feet) on other facility components; or
- b. At least one cubic meter (35 cubic feet) off of facility components where the length or area could not be measured previously.

2. To determine whether this paragraph applies to planned renovation operations involving individual nonscheduled renovation operations, the owner or operator shall predict the combined additive amount of RACM to be removed or stripped during a calendar year.

3. To determine whether this paragraph applies to emergency renovation operations, the owner or operator shall estimate the combined amount of RACM to be removed or stripped as a result of the sudden, unexpected event that necessitated the renovation.

History: Cr. Register, October, 1992, No. 442, eff. 11-1-92; correction in (2) (c) made under s. 13.93 (2m) (b) 7, Stats., Register, May, 1993, No. 449.

**NR 447.07 Demolition and renovation; notification requirements.** Each owner or operator of a demolition or renovation activity to which this chapter applies shall:

(1) Provide the department with written notice of intention to demolish or renovate. Delivery of the notice by U.S. postal service, commercial delivery service or hand delivery is acceptable.

(2) Update the notice, as necessary, including when the amount of asbestos affected changes by at least 20%.

(3) Postmark or deliver the notice as follows:

(a) At least 10 working days before asbestos stripping or removal work or any other activity begins, such as site preparation that would breakup, dislodge or similarly disturb asbestos material, if the operation is described in s. NR 447.06 (2) (a) and (d) 1. If the operation is as described in s. NR 447.06 (2) (b), notification is required 10 working days before demolition begins.

(b) At least 10 working days before the end of the calendar year preceding the year for which notice is being given for planned renovations referred to in s. NR 447.06 (2) (d) 2.

(c) As early as possible before, but not later than, the following working day if the operation is a demolition ordered according to s. NR 447.06 (2) (c) or if the operation is an emergency renovation referred to in s. NR 447.06 (2) (d) 3.

(d) For asbestos stripping or removal work in a demolition or renovation operation, described in s. NR 447.06 (2) (a) and (d) 1, and for demolition described in s. NR 447.06 (2) (b) that will begin on a date other than the one contained in the original notice, the owner or operator shall provide notice of the new start date to the department as follows:

Register, May, 1993, No. 449

1. When the asbestos stripping or removal operation or demolition operation covered by this paragraph will begin after the date contained in the notice:

a. Notify the department of the new start date by telephone as soon as possible before the original start date, and

b. Provide the department with a written notice of the new start date as soon as possible before, but no later than, the original start date. Delivery of the updated notice by the U.S. postal service, commercial delivery service or hand delivery is acceptable.

2. When the asbestos stripping or removal operation or demolition operation covered by this paragraph will begin on a date earlier than the original start date:

a. Provide the department with a written notice of the new start date at least 10 working days before asbestos stripping or removal work begins.

b. For demolitions covered by s. NR 447.06 (2) (b), provide the department written notice of a new start date at least 10 working days before commencement of demolition. Delivery of updated notice by U.S. postal service, commercial delivery service or hand delivery is acceptable.

3. In no event may an operation covered by this paragraph begin on a date other than the date contained in the written notice of the new start date.

(4) Include the following in the notice:

(a) An indication of whether the notice is the original or a revised notification.

(b) Name, address and telephone number of both the facility owner and operator and the asbestos removal contractor owner or operator.

(c) Type of operation: demolition or renovation.

(d) Description of the facility or affected part of the facility including the size (square meters [square feet] and number of floors), age and present and prior use of the facility.

(e) Procedure, including analytical methods, employed to detect the presence of RACM and Category I and Category II nonfriable ACM.

(f) Estimate of the approximate amount of RACM to be removed from the facility in terms of length of pipe in linear meters (linear feet), surface area in square meters (square feet) on other facility components, or volume in cubic meters (cubic feet) if off the facility components. Also, estimate the approximate amount of Category I and Category II nonfriable ACM in the affected part of the facility that will not be removed before demolition.

(g) Location and street address, including building number or name and floor or room number, if appropriate, city, county and state of the facility being demolished or renovated.

(h) Scheduled starting and completion dates of asbestos removal work, or any other activity, such as site preparation that would break up, dislodge or similarly disturb asbestos material, in a demolition or renovation.

tion; planned renovation operations involving individual nonscheduled operations shall only include the beginning and ending dates of the report period as described in s. NR 447.06 (2) (d) 2.

(i) Scheduled starting and completion dates of demolition or renovation.

(j) Description of planned demolition or renovation work to be performed and methods to be employed, including demolition or renovation techniques to be used and description of affected facility components.

(k) Description of work practices and engineering controls to be used to comply with the requirements of this chapter, including asbestos removal and waste-handling emission control procedures.

(l) Name and location of the waste disposal site where the asbestos-containing waste material will be deposited.

(m) A certification that at least one person trained as required by s. NR 447.08 (8) will supervise the stripping and removal described by this notification. This requirement shall become effective one year after November 1, 1992.

(n) For facilities described in s. NR 447.06 (2) (c), the name, title and authority of the state or local government representative who has ordered the demolition, the date that the order was issued, and the date on which the demolition was ordered to begin. A copy of the order shall be attached to the notification.

(o) For emergency renovations referred to in s. NR 447.06 (2) (d) 3, the date and hour that the emergency occurred, a description of the sudden, unexpected event, and an explanation of how the event caused an unsafe condition, or would cause equipment damage or an unreasonable financial burden.

(p) Description of procedures to be followed in the event that unexpected RACM is found or Category II nonfriable ACM becomes crumbled, pulverized or reduced to powder.

(q) Name, address and telephone number of the waste transporter.

History: Cr. Register, October, 1992, No. 442, eff. 11-1-92; correction in (3) and (4) made under s. 13.93 (2m) (b) 7, Stats., Register, May, 1993, No. 449.

**NR 447.08 Demolition and renovation; procedures for asbestos emission control.** Each owner or operator of a demolition or renovation activity to whom this section applies, according to s. NR 447.06, shall comply with the following procedures:

(1) Remove all RACM from a facility being demolished or renovated before any activity begins that would break up, dislodge or similarly disturb the material or preclude access to the material for subsequent removal. RACM need not be removed before demolition if any of the following apply:

(a) It is Category I nonfriable ACM that is not in poor condition and is not friable.

(b) It is on a facility component that is encased in concrete or other similarly hard material and is adequately wet whenever exposed during demolition.

(c) It was not accessible for testing and was, therefore, not discovered until after demolition began and, as a result of the demolition, the material cannot be safely removed. If not removed for safety reasons, the exposed RACM and any asbestos-contaminated debris shall be treated as asbestos-containing waste material and adequately wet at all times until disposed of.

(d) It is Category II nonfriable ACM and the probability is low that the materials will become crumbled, pulverized or reduced to powder during demolition.

(2) When a facility component that contains, is covered with or is coated with RACM is being taken out of the facility as a unit or in sections:

(a) Adequately wet all RACM exposed during cutting or disjoining operations.

(b) Carefully lower each unit or section to the floor and to ground level, not dropping, throwing, sliding or otherwise damaging or disturbing the RACM.

(3) When RACM is stripped from a facility component while it remains in place in the facility, adequately wet the RACM during the stripping operation.

(a) In renovation operations, wetting is not required if:

1. The owner or operator has obtained prior written approval from the department based on a written application that wetting to comply with this subsection would unavoidably damage equipment or present a safety hazard.

2. The owner or operator uses one of the following emission control methods:

a. A local exhaust ventilation and collection system designed and operated to capture the particulate asbestos material produced by the stripping and removal of the asbestos materials. The system shall exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in s. NR 447.15.

b. A glove-bag system designed and operated to contain the particulate asbestos material produced by the stripping of the asbestos materials.

c. Leak-tight wrapping to contain all RACM prior to dismantlement.

(b) In renovation operations where wetting would result in equipment damage or a safety hazard, and the methods allowed in par. (a) cannot be used, another method may be used after obtaining written approval from the department based upon a determination that it is equivalent to wetting in controlling emissions or to the methods allowed in par. (a).

(c) A copy of the department's written approval shall be kept at the work site and made available for inspection.

(4) After a facility component covered with, coated with or containing RACM has been taken out of the facility as a unit or in sections pursuant to sub. (2), it shall be stripped or contained in leak-tight wrapping, except as described in sub. (5). If stripped:

- (a) Adequately wet the RACM during stripping.
- (b) Use a local exhaust ventilation and collection system designed and operated to capture the particulate asbestos material produced by the stripping. The system shall exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in s. NR 447.15.
- (5) For large facility components such as reactor vessels, large tanks and steam generators, but not beams, which shall be handled in accordance with subs. (2) to (4), the RACM is not required to be stripped if the following requirements are met:
- (a) The component is removed, transported, stored, disposed of or re-used without disturbing or damaging the RACM.
- (b) The component is encased in a leak-tight wrapping.
- (c) The leak-tight wrapping is labeled according to s. NR 447.12 during all loading and unloading operations and during storage.
- (6) For all RACM, including material that has been removed or stripped:
- (a) Adequately wet the material and ensure that it remains wet until collected and contained or treated in preparation for disposal in accordance with s. NR 447.13.
- (b) Carefully lower the material to the ground and floor, not dropping, throwing, sliding or otherwise damaging or disturbing the material.
- (c) Transport the material to the ground via leak-tight chutes or containers if it has been removed or stripped more than 50 feet above ground level and was not removed as units or in sections.
- (d) RACM contained in leak-tight wrapping that has been removed in accordance with subs. (3) (a) 2. c. and (4) need not be wetted.
- (7) When the temperature at the point of wetting is below 0°C (32°F):
- (a) The owner or operator need not comply with sub. (2) (a) and the wetting provisions of sub. (3).
- (b) The owner or operator shall remove facility components containing, coated with, or covered with RACM as unit or in sections to the maximum extent possible.
- (c) During periods when wetting operations are suspended due to freezing temperatures, the owner or operator shall record the temperature in the area containing the facility components at the beginning, middle and end of each working day and keep daily temperature records available for inspection by the department during normal business hours at the demolition or renovation site. The owner or operator shall retain the temperature records for at least 2 years.
- (8) No RACM may be stripped, removed or otherwise handled or disturbed at a facility regulated by this chapter unless at least one on-site representative, such as a foreman or management-level person or other authorized representative, trained in the provisions of this chapter and the means of complying with them, is present. Every 2 years, the trained on-site individual shall receive refresher training in the provisions of this chapter. The required training shall include at a minimum: applicability;

notifications; material identification; control procedures for removals including, at least, wetting, local exhaust ventilation, negative pressure enclosures, glove-bag procedures, and High Efficiency Particulate Air (HEPA) filters; waste disposal work practices; reporting and record keeping; and asbestos hazards and worker protection. Each owner or operator shall post evidence that the required training has been completed and make such evidence available for inspection by the department at the demolition or renovation site.

(9) For facilities described in s. NR 447.06 (2) (c), adequately wet the portion of the facility that contains RACM during the wrecking operation.

(10) If a facility is demolished by intentional burning, all RACM including Category I and Category II nonfriable ACM shall be removed in accordance with this chapter before burning.

History: Cr. Register, October, 1992, No. 442, eff. 11-1-92; correction in (9) made under s. 13.93 (2m) (b) 7, Stats., Register, May, 1993, No. 449.

**NR 447.09 Spraying.** (1) Except as provided in sub. (2), the owner or operator of an operation in which asbestos-containing materials are spray applied shall comply with the following requirements:

(a) For spray-on application on buildings, structures, pipes and conduits, the owner or operator may not use material containing more than 1% asbestos as determined using the method specified in appendix A of subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy, incorporated by reference in ch. NR 484.

(b) For spray-on application of materials that contain more than 1% asbestos as determined using the method specified in appendix A of subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy, on equipment and machinery, the owner or operator shall:

1. Notify the department at least 20 days before beginning the spray-operation. Include the following information in the notice:

- a. Name and address of owner or operator.
- b. Location of spraying operation.
- c. Procedures to be followed to meet the requirements of this section.

2. Discharge no visible emissions to the outside air from spray-on application of the asbestos-containing material or use the methods specified by s. NR 447.15 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

(2) The requirements of sub. (1) do not apply to the spray-on application of materials where the asbestos fibers in the materials are encapsulated with a bituminous or resinous binder during spraying and the materials are not friable after drying.

History: Cr. Register, October, 1992, No. 442, eff. 11-1-92.

**NR 447.10 Fabricating.** (1) **APPLICABILITY.** This section applies to the following fabricating operations using commercial asbestos:

(a) The fabrication of cement building products.

Register, May, 1993, No. 449

(c) The site is subject to this chapter.

History: Cr. Register, October, 1992, No. 442, eff. 11-1-92.

**NR 447.15 Air cleaning.** (1) The owner or operator who uses air cleaning, as specified in ss. NR 447.03 (1), 447.05 (2) (a) 2, 447.08 (3) (a) 2 a, or (4) (b), 447.09 (1) (b) 2, 447.10 (2) (a) 2, 447.12 (2) or (3) (a) 2, 447.13 (1) (a) 2 or (b) 2, and 447.18 (5) shall:

(a) Use fabric filter collection devices, except as noted in sub. (2), doing all of the following:

1. Ensuring that the airflow permeability, as determined by ASTM Method D737-75, incorporated by reference in ch. NR 484, does not exceed  $9 \text{ m}_3/\text{min}/\text{m}_2$  ( $30 \text{ ft}_3/\text{min}/\text{ft}_2$ ) for woven fabrics or  $11 \text{ m}_3/\text{min}/\text{m}_2$  ( $35 \text{ ft}_3/\text{min}/\text{ft}_2$ ) for felted fabrics, except that  $12 \text{ m}_3/\text{min}/\text{m}_2$  ( $40 \text{ ft}_3/\text{min}/\text{ft}_2$ ) for woven and  $14 \text{ m}_3/\text{min}/\text{m}_2$  ( $45 \text{ ft}_3/\text{min}/\text{ft}_2$ ) for felted fabrics is allowed for filtering air from asbestos ore dryers.

2. Ensuring that felted fabric weighs at least 475 grams per square meter (14 ounces per square yard) and is at least 1.6 millimeter (one-sixteenth inch) thick throughout.

3. Avoiding the use of synthetic fabrics that contain fill yarn other than that which is spun.

(b) Properly install, use, operate and maintain all air-cleaning equipment authorized by this section. Bypass devices may be used only during upset or emergency conditions and then only for so long as it takes to shut down the operation generating the particulate asbestos material.

(c) For fabric filter collection devices installed after January 10, 1989, provide for easy inspection for faulty bags.

(2) There are the following exceptions to sub. (1) (a):

(a) If the use of fabric creates a fire or explosion hazard, or the department determines that a fabric filter is not feasible, the department may authorize as a substitute the use of wet collectors designed to operate with a unit contacting energy of at least 9.95 kilopascals (40 inches water gage pressure).

(b) Use of a High Efficiency Particulate Air (HEPA) filter that is certified to be at least 99.97% efficient for 0.3 micron particles.

(c) Use of an alternative filtering equipment that has received prior authorization from the administrator.

History: Cr. Register, October, 1992, No. 442, eff. 11-1-92.

**NR 447.16 Reporting.** (1) Any new source to which this chapter applies, with the exception of sources subject to ss. NR 447.04, 447.06, 447.07, 447.08, 447.09 and 447.11, which has an initial start-up date preceding November 1, 1992, shall provide the information required in this subsection to the department postmarked or delivered within 90 days of November 1, 1992. In the case of a new source that does not have an initial start-up date preceding November 1, 1992, the information shall be provided, postmarked or delivered, within 90 days of the initial start-up date. Any owner or operator of an existing source shall provide the following information to the department within 90 days of November 1, 1992 unless the owner or operator of the existing source has previously

Register, May, 1993, No. 449

provided this information to the department. Any changes in the information provided by any existing source shall be provided to the department, postmarked or delivered, within 30 days after the change. The information shall include:

(a) A description of the emission control equipment used for each process;

(b) If a fabric filter device is used to control emissions,

1. The airflow permeability in  $m_3/\text{min}/m_2$  ( $\text{ft}_3/\text{min}/\text{ft}_2$ ) if the fabric filter device uses a woven fabric and, if the fabric is synthetic, whether the fill yarn is spun or not spun; and

2. If the fabric filter device uses a felted fabric, the density in  $\text{g}/m_2$  ( $\text{oz}/\text{yd}_2$ ), the minimum thickness in millimeters (inches), and the airflow permeability in  $m_3/\text{min}/m_2$  ( $\text{ft}_3/\text{min}/\text{ft}_2$ );

(c) If a High Efficiency Particulate Air (HEPA) filter is used to control emissions, the certified efficiency of the filter.

(d) For sources subject to s. NR 447.12 or 447.13 the shall include all of the following:

1. A brief description of each process that generates asbestos-containing waste material.

2. The average volume of asbestos-containing waste material disposed of, measured in  $m_3/\text{day}$  ( $\text{yd}_3/\text{day}$ ).

3. The emission control methods used in all stages of waste disposal.

4. The type of disposal site or incineration site used for ultimate disposal, the name of the site operator, and the name and location of the disposal site.

(e) For sources subject to s. NR 447.14 or 447.17, the information shall include all of the following:

1. A brief description of the site.

2. The method or methods used to comply with the standard or alternative procedures to be used.

(2) The information required by sub. (1) shall accompany the information required by 40 CFR 61.10, incorporated by reference in ch. NR 484. Active waste disposal sites subject to s. NR 447.17 shall also comply with this provision. Roadways, demolition and renovation, spraying, and insulating materials are exempted from the requirements of 40 CFR 61.10 (a). The information described in this section shall be reported using the format of Appendix A of 40 CFR part 61, incorporated by reference in ch. NR 484, as a guide.

History: Cr. Register, October, 1992, No. 442, eff. 11-1-92.

**NR 447.17 Active waste disposal sites.** Each owner or operator of an active waste disposal site that receives asbestos-containing waste material from a source covered under s. NR 447.12, 447.13 or 447.18 shall meet the following requirements:

Register, May, 1993, No. 449